IN THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) An image processing method for correcting image distortions, comprising the steps of:

inputting a plurality of partially overlapping images of a tangible object on an object plane, the plurality of partially overlapping images sharing a common location of the tangible object and being created by capturing the tangible object on the tangible object plane from different directions to the tangible object plane;

determining a feature point of one of the plurality of partially overlapping images corresponding to the common location of the tangible object, and determining a matched point of one of the other partially overlapping images corresponding to the feature point so that a direction of the tangible object plane is calculated based on the feature point and the matched point, the tangible object plane being defined by a spatial orientation of the tangible object;

selecting one of the plurality of partially overlapping images as a standard image whose image distortions are to be corrected, the selection being based on one of (1) a direction of a straight-line pattern contained in each image, (2) the feature point and the matched point determined in the determining step, and (3) a calculated direction of the object plane for each of the partially overlapping images; and

generating a distortion-corrected image on a projection plane by projecting the standard image onto the projection plane based on the direction of the tangible object plane such that image distortions in the standard image are eliminated.

2. (Canceled)

3. (Currently Amended) The image processing method according to claim 1, wherein in said selecting step, one of the plurality of partially overlapping images is automatically selected as the standard image based on [[a]] the direction of [[a]] the straight-line pattern contained in each image.

4. (Previously Presented) The image processing method according to claim 1 wherein in said selecting step, one of the plurality of partially overlapping images is automatically selected as the standard image based on the feature point and the matched point determined by said determining step.

5. (Currently Amended) The image processing method according to claim 1, wherein in said selecting step, one of the plurality of partially overlapping images is automatically selected as the standard image based on [[a]] the calculated direction of the object plane for each of the partially overlapping images.

6. (Previously Presented) An image processing method for correcting image distortions, comprising the steps of:

inputting a plurality of partially overlapping images of a tangible object on an object plane, the plurality of partially overlapping images sharing a common location of the tangible object and being created by capturing the tangible object on the tangible object plane from different directions to the tangible object plane;

determining a feature point of one of the plurality of partially overlapping images corresponding to the common location of the tangible object, and determining a matched point of one of the other partially overlapping images corresponding to the feature point of said one of the plurality of partially overlapping images so that a direction of the tangible

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object plane is calculated based on the feature point and the matched point, the tangible

object plane being defined by a spatial orientation of the tangible object;

selecting one of the plurality of partially overlapping images as a standard image that

contains a smallest amount of image distortions among the plurality of partially overlapping

images; and

combining the other partially overlapping images, which are projected onto an image

surface of the standard image with respect to each of the other partially overlapping images,

so that a composite image is generated on the image surface so as to correct image distortions

in the standard image.

7. (Previously Presented) An image processing apparatus for correcting image

distortions, comprising:

an input unit inputting a plurality of partially overlapping images of a tangible object

on an object plane, the plurality of partially overlapping images sharing a common location

of the tangible object and being created by capturing the tangible object on the tangible object

plane from different directions to the tangible object plane;

a correspondence detecting unit determining a feature point of one of the plurality of

partially overlapping images corresponding to the common location of the tangible object,

and determining a matched point of one of the other partially overlapping images

corresponding to the feature point of said one of the plurality of partially overlapping images

so that a direction of the tangible object plane is calculated based on the feature point and the

matched point, the tangible object plane being defined by a spatial orientation of the tangible

object;

a standard image setting unit selecting one of the plurality of partially overlapping images as a standard image that contains a smallest amount of image distortions among the plurality of partially overlapping images; and

an image composition unit combining the other partially overlapping images, which are projected onto an image surface of the standard image with respect to each of the other partially overlapping images, so that a composite image is generated on the image surface so as to correct image distortions in the standard image.

8. (Original) The image processing apparatus according to claim 7, wherein said standard image setting unit is configured such that a user is required to select the standard image when taking the original image from one of the oblique directions, and wherein said image processing apparatus further comprises a notification unit which notifies the user that the standard image is currently taken.

9. (Currently Amended) An image processing apparatus for correcting image distortions, comprising:

an input unit inputting a plurality of partially overlapping images of a tangible object on an object plane, the plurality of partially overlapping images sharing a common location of the tangible object and being created by capturing the tangible object on the tangible object plane from different directions to the tangible object plane;

a correspondence detecting unit determining a feature point of one of the plurality of partially overlapping images corresponding to the common location of the tangible object, and determining a matched point of one of the other partially overlapping images corresponding to the feature point so that a direction of the tangible object plane is calculated

based on the feature point and the matched point, the tangible object plane being defined by a

spatial orientation of the tangible object;

a standard image setting unit selecting one of the plurality of partially overlapping

images as a standard image whose image distortions are to be corrected, the selection being

based on one of (1) a direction of a straight-line pattern contained in each image, (2) the

feature point and the matched point determined by the correspondence detecting unit, and (3)

a calculated direction of the object plane for each of the partially overlapping images; and

a distortion correcting unit generating a distortion-corrected image on a projection

plane by projecting the standard image onto the projection plane based on the direction of the

tangible object plane such that image distortions in the standard image are eliminated.

10. (Previously Presented) The image processing apparatus according to claim 9,

further comprising a plurality of imaging units which respectively input the plurality of

partially overlapping images that are generated by taking the tangible object from the oblique

directions.

11. (Canceled)

12. (Currently Amended) The image processing apparatus according to claim 9,

wherein said standard image setting unit is configured such that one of the plurality of

partially overlapping images is automatically selected as the standard image based on [[a]]

the direction of [[a]] the straight-line pattern contained in each image.

13. (Previously Presented) The image processing apparatus according to claim 9,

wherein said standard image setting unit is configured such that one of the plurality of

partially overlapping images is automatically selected as the standard image based on the

feature point and the matched point determined by said correspondence detecting unit.

14. (Currently Amended) The image processing apparatus according to claim 9,

wherein said standard image setting unit is configured such that one of the plurality of

partially overlapping images is automatically selected as the standard image based on [[a]]

the calculated direction of the object plane for each of the partially overlapping images.

15. (Currently Amended) A computer-readable storage medium storing program code

instructions for causing a computer to execute an image distortion correction processing to

correct image distortions, comprising:

first program code means for causing the computer to input a plurality of partially

overlapping images of a tangible object on an object plane, the plurality of partially

overlapping images sharing a common location of the tangible object and being created by

capturing the tangible object on the tangible object plane from different directions to the

tangible object plane;

second program code means for causing the computer to determine a feature point of

one of the plurality of partially overlapping images corresponding to the common location of

the tangible object, and to determine a matched point of one of the other partially overlapping

images corresponding to the feature point so that a direction of the tangible object plane is

calculated based on the feature point and the matched point, the tangible object plane being

defined by a spatial orientation of the tangible object;

third program code means for causing the computer to select one of the plurality of

partially overlapping images as a standard image whose image distortions are to be corrected,

the selection being based on one of (1) a direction of a straight-line pattern contained in each

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image, (2) the feature point and the matched point determined by the second program code

means, and (3) a calculated direction of the object plane for each of the partially overlapping

images; and

fourth program code means for causing the computer to generate a distortion-

corrected image on a projection plane by projecting the standard image onto the projection

plane based on the direction of the tangible object plane such that image distortions in the

standard image are eliminated.

16. (Previously Presented) A computer-readable storage medium storing program

code instructions for causing a computer to execute an image distortion correction processing

to correct image distortions, comprising:

first program code means for causing the computer to input a plurality of partially

overlapping images of a tangible object on an object plane, the plurality of partially

overlapping images sharing a common location of the tangible object and being created by

capturing the tangible object on the tangible object plane from different directions to the

tangible object plane;

second program code means for causing the computer to determine a feature point of

one of the plurality of partially overlapping images corresponding to the common location of

the tangible object, and to determine a matched point of one of the other partially overlapping

images corresponding to the feature point of said one of the plurality of partially overlapping

images so that a direction of the tangible object plane is calculated based on the feature point

and the matched point, the tangible object plane being defined by a spatial orientation of the

tangible object;

third program code means for causing the computer to select one of the plurality of

partially overlapping images as a standard image that contains a smallest amount of image

distortions among the plurality of partially overlapping images; and

fourth program code means for causing the computer to combine the other partially

overlapping images, which are projected onto an image surface of the standard image with

respect to each of the other partially overlapping images, so that a composite image is

generated on the image surface so as to correct image distortions in the standard image.

17. (Previously Presented) The image processing method of claim 1, wherein said

standard image is projected with a perspective projection matrix operation.

18. (Previously Presented) The image processing method of claim 6, wherein said

other partially overlapping images are projected with a perspective projection matrix

operation.

19. (Previously Presented) The image processing apparatus of claim 7, wherein said

other partially overlapping images are projected with a perspective projection matrix

operation.

20. (Previously Presented) The image processing apparatus of claim 9, wherein said

standard image is projected with a perspective projection matrix operation.

21. (Previously Presented) The computer readable storage medium of claim 15,

wherein said distortion-corrected image is generated with a perspective projection matrix

operation.

22. (Previously Presented) The computer readable storage medium of claim 16, wherein said other partially overlapping images are projected with a perspective projection matrix operation.

23. (Previously Presented) The image processing method of claim 17, wherein said perspective projection matrix is calculated based on coordinates of at least four combinations of feature points of the standard image and matched points corresponding thereto.

24. (Previously Presented) The image processing method of claim 18, wherein a least-square-method is used to find parameters of said perspective projection matrix.

25. (Previously Presented) The image processing method according to claim 1, wherein the tangible object is an image on a planar object plane.

26. (Canceled)

27. (Previously Presented) The image processing method according to claim 1, wherein the projection plane is parallel to the tangible object plane.

28. (Previously Presented) The image processing method according to claim 1, wherein the plurality of partially overlapping images are created by capturing the tangible object on the object plane using a same imaging unit.

29. (Previously Presented) The image processing method according to claim 1, wherein the plurality of partially overlapping images are created by capturing the tangible object on the object plane at different time instants using a same image unit.

30. (Previously Presented) The image processing method according to claim 1, wherein the plurality of partially overlapping images are created by moving a same imaging unit to capture the tangible object on the object plane from different directions to the tangible object plane.

31. (Previously Presented) The image processing method according to claim 6 wherein the plurality of partially overlapping images are created by capturing the tangible object on the object plane using a same imaging unit.

32. (Previously Presented) The image processing method according to claim 6, wherein the plurality of partially overlapping images are created by capturing the tangible object on the object plane at different time instants using a same image unit.

33. (Previously Presented) The image processing method according to claim 6, wherein the plurality of partially overlapping images are created by moving a same imaging unit to capture the tangible object on the object plane from different directions to the tangible object plane.

34. (Previously Presented) The image processing method according to claim 7, wherein the plurality of partially overlapping images are created by capturing the tangible object on the object plane using a same imaging unit.

35. (Previously Presented) The image processing method according to claim 7, wherein the plurality of partially overlapping images are created by capturing the tangible object on the object plane at different time instants using a same image unit.

36. (Previously Presented) The image processing method according to claim 7, wherein the plurality of partially overlapping images are created by moving a same imaging unit to capture the tangible object on the object plane from different directions to the tangible object plane.

37. (Previously Presented) The image processing method according to claim 9, wherein the plurality of partially overlapping images are created by capturing the tangible object on the object plane using a same imaging unit.

38. (Previously Presented) The image processing method according to claim 9, wherein the plurality of partially overlapping images are created by capturing the tangible object on the object plane at different time instants using a same image unit.

39. (Previously Presented) The image processing method according to claim 9, wherein the plurality of partially overlapping images are created by moving a same imaging unit to capture the tangible object on the object plane from different directions to the tangible object plane.

40. (Previously Presented) The image processing method according to claim 15, wherein the plurality of partially overlapping images are created by capturing the tangible object on the object plane using a same imaging unit.

41. (Previously Presented) The image processing method according to claim 15, wherein the plurality of partially overlapping images are created by capturing the tangible object on the object plane at different time instants using a same image unit.

42. (Previously Presented) The image processing method according to claim 15, wherein the plurality of partially overlapping images are created by moving a same imaging unit to capture the tangible object on the object plane from different directions to the tangible object plane.

43. (Previously Presented) The image processing method according to claim 16, wherein the plurality of partially overlapping images are created by capturing the tangible object on the object plane using a same imaging unit.

44. (Previously Presented) The image processing method according to claim 16, wherein the plurality of partially overlapping images are created by capturing the tangible object on the object plane at different time instants using a same image unit.

45. (Previously Presented) The image processing method according to claim 16, wherein the plurality of partially overlapping images are created by moving a same imaging unit to capture the tangible object on the object plane from different directions to the tangible object plane.